IN THE

Supreme Court of the United States

SEP ... ROBERT SEAVER, CLERK

October Term, 1971

No. 71-363

BECKMAN INSTRUMENTS INCORPORATED,

Petitioner,

vs.

REEVES INSTRUMENT CORPORATION,

and

DYNAMICS CORPORATION OF AMERICA,

Respondents.

Motion and Petition for Writ of Mandamus, or Writ of Certiorari, to the Court of Appeals for the Ninth Circuit.

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IN THE

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BECKMAN INSTRUMENTS INCORPORATED,
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REEVES INSTRUMENT CORPORATION,
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Respondents.

Motion and Petition for Writ of Mandamus, or Writ of Certiorari, to the Court of Appeals for the Ninth Circuit.

Motion.

Pursuant to Rule 31 of this Court, petitioner Beckman Instruments, Inc. hereby moves this Court for leave to file the following petition for writ of mandamus.

Petition.

Petitioner hereby petitions that a writ of mandamus issue, directed to the United States Court of Appeals for the Ninth Circuit, directing it to consider and decide the "late claiming" defense asserted by petitioner, as set forth hereinafter,

and, or in the alternative,

Petitioner hereby petitions that a writ of certiorari issue to review the judgment of the United States Court

of Appeals for the Ninth Circuit, entered in the above-entitled action on April 27, 1971, as amended by an Order on Petitioner for Rehearing entered on July 1, 1971 by said Court of Appeals.

Opinion Below.

The District Court rendered no opinion in this action, although a copy of its Judgment is reproduced in the appendix hereto. Copies of the original Opinion of the Court of Appeals (entered on April 27, 1971) and its Order on Petition for Rehearing (entered on July 1, 1971) amending the original Opinion of the Court of Appeals, are reproduced in the appendix hereto. [pp. 4-31], reported at ..... F. 2d ....., 170 U.S.P.Q. 74.

Jurisdiction.

(i) The Judgment of the Court of Appeals sought to be reviewed is dated April 27, 1971, entered on the same day, as amended by said Order on Petition for Rehearing, dated June 25, 1971 and entered on July 1, 1971.

(ii) The Court of Appeals entered said Order on Petition for Rehearing on July 1, 1971, denying rehearing, and by Orders filed on July 13, 1971 and August 3, 1971 extended petitioner's time to September 9, 1971, within which to petition for certiorari.

(iii) The statutory provision believed to confer on this Court jurisdiction to issue the writ of mandamus sought hereby is 28 U.S.C. §1651.

(iv) The statutory provision believed to confer on this Court jurisdiction to review said Judgment by writ of certiorari is 28 U.S.C. §1254(1).

REASONS FOR ISSUE OF WRIT OF MANDAMUS.

The general reason for the issuance of the writ of mandamus sought hereby is that the Court of Appeals has refused to consider or decide the issues as to an important defense to the validity of the patent in suit, *i.e.*, "late claiming," and has held the patent valid without considering such defense.

REASONS FOR ALLOWANCE OF THE WRIT OF CERTIORARI.

The general reasons for allowance of the writ of certiorari are as follows:

(1) The decision of the Court of Appeals is contrary to Article I, Section 8, Clause 8, of the Constitution;

(2) The Court of Appeals has refused to decide an important question of Federal law which has not been, but should be, settled by this Court;

(3) The decision of the Court of Appeals for the Ninth Circuit here is in conflict with other decisions of itself and other Courts of appeal on the same matter;

(4) The decision of the Court of Appeals has decided federal questions in conflict with applicable decisions of this Court; and

(5) By its decision, the Court of Appeals has so far departed from the accepted and usual course of judicial proceedings as to call for an exercise of this Court's power of supervision.

Questions Presented.

1. Where the invalidity of a patent claim is properly before a Court of Appeals upon a specific defense ground (here "late claiming") can the Court of Appeals properly merely ignore such defense, fail to rule upon or consider it, and hold the patent valid?

2. Can a patent applicant, after learning of competitive devices, properly broaden his patent claims solely for the express purpose of covering such competitive devices which were not covered by any original claims of his application?

3. Can a patent applicant, more than one year after the statutory bar date specified in 35 U.S.C. §102(b), properly broaden his patent claims solely for the express purpose of covering competitive devices which were not covered by any earlier claims in his application?

4. Where all of the elements of a patent claim are old in the prior art and have been used in substantially the same combination in the prior art to produce substantially the same result, can a holding that the subject matter of the claim is "non-obvious" and patentable under 35 U.S.C. §103 be supported without any inquiry by the lower courts as to whether such elements operate any differently in the claimed combination than they did separately in the prior art, whether the claimed combination is more than the sum of its parts, whether there is any synergism or synergistic effect resulting from the combination of old elements, and whether findings of fact are necessary on these points of inquiry?

Statutes Involved.

This case involves Article I, Section 8, Clause 8, of the Constitution, as follows:

> "To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;"

It also involves a portion of Section 102 and Section 103, Title 35, United States Code, as follows:

> "§102. Conditions for patentability; novelty and loss of right to patent
>
> "A person shall be entitled to a patent unless—
>
> . . . .
>
> "(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States. . ."
>
> "§103. Conditions for patentability; non-obvious subject matter
>
> "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patenability shall not be negatived by the manner in which the invention was made."

Statement of the Case Generally.

This action was filed by plaintiffs-respondents on January 30, 1964, in the (then) Southern District of California, for alleged infringement by defendant-petitioner Beckman Instruments, Incorporated of the U.S. patent to McCoy, No. 2,967,997.

Actions involving this same McCoy patent, and its validity and infringement, are pending in the District Court of New Jersey (Newark), *Reeves Instruments Co. v. Electronic Associates, Inc.*, Dk. 345-66, and against the Government in the Court of Claims, *Dynamics Corporation of America v. United States,* No. 258-67. The validity and infringement of the McCoy patent are matters of public interest.

On November 27, 1968, the District Court entered judgment for the respondents, holding the McCoy patent in suit valid and infringed by petitioner. The Court of Appeals affirmed the decision of the District Court. In its Opinion, the Court of Appeals virtually ignored the defense that the McCoy patent was invalid for anticipation under 35 U.S.C. §102 and entirely ignored the defense that the McCoy claims in suit are invalid for "late claiming."

The McCoy '997 patent in suit claims an apparatus, or "machine," for checking the circuitry of an electronic analog computer. As conceded by the Court of Appeals in its Opinion the alleged invention of the McCoy patent is very simple, and, petitioner contends, the subject matter consists only of a combination of elements all of which were old in the analog computer art. This is virtually conceded by the Opinion.

The McCoy patent includes fourteen claims, only claims 7, 8 and 13 (herein referred to as the "claims

in suit") being involved in this action. Such claims in suit cover only an apparatus for a "static" check of such computer circuitry. Other claims of the McCoy patent cover an apparatus for "dynamic" checking of such circuitry, and the remaining claims cover an apparatus for both the "static" and "dynamic" checking of such circuitry.

The application for the McCoy patent was filed in the Patent Office on April 20, 1955. The McCoy application as filed, contained claims covering (i) only the apparatus for making a "dynamic" check and (ii) the combined apparatus for making both the "static" and the "dynamic" check. As filed, the McCoy application contained no claims directed solely to an apparatus for making only a "static" check. It was not until Oct. 3, 1956 (about seventeen months later) that any claim was added to the McCoy patent application covering the apparatus for only "static" checking.

Similarly, in the McCoy application as filed, all of the claims covered an apparatus in which there was "means for disconnecting the output of the integrator from the computer circuit," and it was not until Oct. 3, 1956 that any claim was added which was not so limited.[1] At the same time the original McCoy specification was broadened. The original specification stated: "In order to facilitate the checking operation, a readout device 64 . . . is used to measure the output of the integrator *for the purpose of checking the output obtained* (emphasis added)," and on Oct. 3, 1956 the italicized portion of this statement of the specifica-

[1]In petitioner's alleged infringing device there is no "means for disconnecting the output of the integrator from the computer circuit."

tion was deleted. Also, at the same time new claims 15 and 16 (claims 7 and 8 in suit) were added to claim measuring the test voltage at the input of the integrator. The reason for adding such new claims to the McCoy application was clearly stated in advance by the McCoy patent agent Spencer, who wrote a memo to his superiors stating:

> "I would like to draw a set of broad claims if this is possible which will cover not only our own 'Problem Check' invention, but the problem check systems of our competitors."

As recognized by the Opinion [Appendix pp. 4-31], the problem check concept of the McCoy patent was proposed by respondent Reeves to the WADC Government facility and incorporated into the Government specifications for its proposed computer. This was done at the request of the Government, but with the express advance injunction by the Government that respondent Reeves should not include in such proposal anything that Reeves considered as its proprietary information. Overlooked by the Court of Appeals is the fact that copies of such specifications were sent formally by the Government through unclassified communication channels to the then major computer manufacturers, Reeves, Electronic Associates, RCA, Beckman, Mid-Century, Goodyear, and General Electric, in January, 1955 [Warsh., Tr. 665], with the full knowledge and consent of respondent Reeves [Dowling, Tr. 665]. Also overlooked by the Court of Appeals is the fact that it was stipulated by the parties that respondent Reeves had publicly used, placed on sale and contracted to sell in this country, devices including the subject matter of the McCoy patent and that such subject matter,

in effect, had been described in a printed publication, all more than one year prior to the presentation of the McCoy claims in suit [R. 338, 345]. A copy of such printed publication was in the possession of petitioner Beckman during 1955 [R. 345], over five years before the McCoy patent issued in 1961.

The Subject Matter of the McCoy Patent in Suit.

The relevant portions of the McCoy patent, the prior art, and petitioner's Model 2100 computer held to infringe can best be understood by reference to Fig. 2 of the drawing of the McCoy patent, reproduced as Fig. 1 of the Opinion [Appendix, p. 7], which is reproduced as follows, with lead lines and the letters *A*, *B*, *C*, and *D* added thereto:

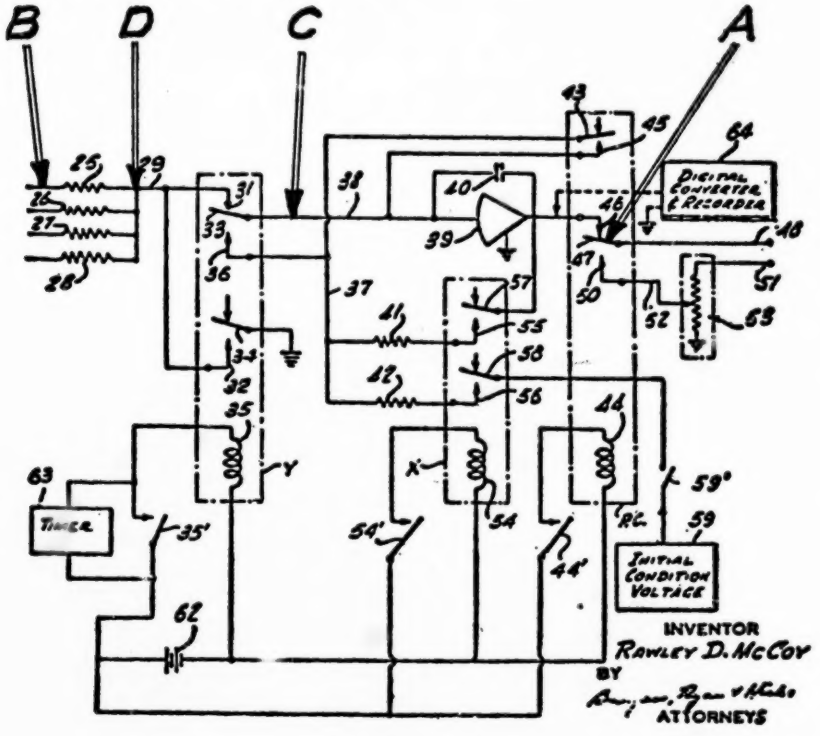

FIGURE 1

In the McCoy patent the loop is broken at the output of the integrator, at point *A* in Fig. 1 above, by a switch 47, the test signal voltage is supplied by the same switch from a pot 53, and passing the point 48, proceeds through the remaining computer elements, back to the input resistors 25-28 of the integrator, and through the integrator, being measured by the conventional measuring device 64 at the output of the integrator. In the prior art static checks [I.C., Martin, and MIT-Jatras—Opinion [Appendix, pp. 11-18] the loop was broken at the point *C* in Fig. 1 on the input side of the integrator the I.C. test voltage was put into the circuit at point *C* in the integrator, passed through the balance of the integrator (amplifier 39, etc.), the point 48, and the remaining computer elements and back to point *B* where it was measured by a conventional measuring device. In the petitioner's Model 2100 device held to infringe, the loop was also broken at the point *C* in Fig. 1, the test signal voltage was inserted into the circuit at point *C*, exactly as in the prior art, passed through the balance of the integrator, through the remaining computer elements, and back to point *D* where it was measured by a conventional measuring device. Within the facts as found by the Court of Appeals,[2] the only structural difference between the petitioner's device held to infringe (and therefore claimed in the McCoy patent) and the prior art is that in the petitioner's device the measurement of the test signal was at point *D* in the circuit (in the integrator),

[2]Petitioner does not agree with many of the factual findings of the Opinion; for example, as to the location of the "input of the integrator" of the McCoy claims, in petitioner's 2100 computer, or in the prior art, but does not expect this Court to consider such factual matters in connection with this Petition. The above explanation is confined within the parameters of the Opinion.

whereas in the prior art it was at point B, in the circuit ahead of the integrator.

The nature of the change made by McCoy to the conventional integrator circuit was best described by him in his original disclosure to his superiors at respondent Reeves in 1954, to the effect that all he did to the conventional prior art integrator was to add one relay [relay P.C.] and one potentiometer [pot 53]. Thus the McCoy circuit was old, except for the simple addition of such relay and potentiometer, both of which were individually old in the art and which accomplished no unexpected result in the McCoy circuit.

The basis for federal jurisdiction of the District Court in this action is 28 U.S.C. § 1338(a).

ARGUMENT.

The Court of Appeals Erred in Failing to Rule on the "Late Claiming" Defense of Invalidity.

In both Courts below, the petitioner Beckman contended that the McCoy patent in suit is invalid because the subject matter of the claims in suit was not added to the application for the McCoy patent until over *seventeen* months after the application was filed and then for the express purpose of covering the "check systems of our competitors."

This defense was extensively argued and briefed by both parties in the Courts below [see Appendix, pp. 32-47]. The District Court made numerous findings of fact and conclusions of law with regard thereto. Yet, the Court of Appeals refused to consider or rule upon this defense,[3] dismissing it with the erroneous statement:

> "Other defenses, including late claiming, were urged before the district court but are not relied upon in this appeal and thus will not be discussed."

It has long been the rule that a court of appeals has a duty to consider and decide all issues properly presented to it. In *Twist v. Praire Oil & Gas Co.*, 274 U.S. 684, 692 (1926), this Court so held, saying:

> "But it [the Court of Appeals] could not, while refusing to consider the errors assigned, retain the case and adjudicate the merits. . . .
>
> "Because the Court of Appeals should have considered the errors assigned as in an equity

[3]This was called to the attention of the Court of Appeals by petitioner in its petition for rehearing before that court [Appendix, pp. 48-49].

> cause but did not, we reverse its judgement and remand the case to it for further proceedings in accordance with this opinion. See Liberty Oil Co. v. Condon Nat. Bank, 260 U.S. 235, 245."

This duty of a court of appeals has been recognized by Courts of Appeal in other circuits,[4] yet the Court of Appeals for the Ninth Circuit has refused to honor and follow it. There is thus a conflict between the Ninth Circuit and other Courts of Appeal as to the duty of such a court to consider all issues properly presented to it.

Such duty was imperative in this case, in view of the public interest involved in the validity of the McCoy patent here in suit. The government and other private parties have a real and present concern as to the validity of the McCoy patent. The public interest in the validity of a patent, and the importance of deciding it, were noted by this Court in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 330 (1944), in which it said:

> "It has come to be recognized, however, that of the two questions, *validity has the greater public importance* . . . and the District Court in this case followed what will usually be the better practice by *inquiring fully into the validity* of this patent." (Emphasis added).

Thus, the refusal of the Court of Appeals to consider the "late claiming" defense provides *three* reasons under Rule 19 of this Court, on this ground alone, why the writ should issue: (a) such refusal is not in

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[4] *Ashton v. Town of Deerfield Beach*, 155 F. 2d 40 (CCA 5th 1946); *Indemnity Insurance Co. of N.A. v. Pioneer Valley Savings Bank*, 343 F. 2d 634 (C.A. 8th 1965).

accord with the applicable decisions of this Court; (b) such refusal is in conflict with decisions of other courts of appeal; and (c) such refusal has so far departed from the accepted and usual course of judicial proceedings as to call for an exercise of this Court's power of supervision.

Petitioner submits that this case should either be remanded to the Court of Appeals by writ of mandamus or otherwise for consideration and determination of the applicability of the "late claiming" defense to invalidate the McCoy patent in suit,[5] or the issue should be decided by this Court here and now on the basis set forth in the following section.

The "Late Claiming" Defense Is Effective to Invalidate the McCoy Patent.

This Court made it plain in *Graham v. John Deere Co.*, 383 U.S. 1 (pp. 5-6) (1966), that it is the Constitution, Art. I, §8, Clause 8, that provides the final standard as to patentability of an invention. Such Constitutional provision, in effect, states plainly that patents may be issued to "Inventors [for] the exclusive Right to *their* . . . Discoveries." (Emphasis added). As pointed out in *Graham* (p. 5): "The clause is both a grant of power and a limitation."

The Constitution does not permit patents to inventors on the discoveries *of others*. Yet here the Court of Appeals has held valid the McCoy patent claims which cover the discoveries of the competitors of respondent Reeves, as distinguished from McCoy's alleged invention, even though such claims were added to the

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[5]See: *Liberty Oil Co. v. Condon National Bank*, 260 U.S. 235 (1922); *Maryland Casualty Co. v. Jones*, 279 U.S. 792 (1928).

McCoy application expressly for the sole purpose of covering the devices of its competitors. Petitioner suggests that the framers of the Constitution would not have condoned such conduct.

Here, McCoy did not present to the Patent Office the subject matter of the claims in suit until more than one year (actually about seventeen months) after his application was filed in April, 1955, for the express purpose of covering competitors' devices. Such subject matter was a new and different "invention" than anything originally disclosed or claimed in the application. As early as January, 1955, respondent had fully and publicly disclosed the McCoy computer checking device to the United States Government with the hope of selling such devices to the Government and others, and the Government by that early date incorporated the McCoy patent concept in its official computer specification and sent copies of such specification to the leading computer manufacturers. More than one year before such claims were presented to the Patent Office in the McCoy application, the subject matter of the application was in public use and on sale in this country by respondent Reeves and had been described by it in a printed publication. This, petitioner says, was such a "late claiming" of the alleged invention as to invalidate the McCoy patent.

The doctrine of "late claiming" to invalidate a patent has its origins in *Chicago and Northwestern R. Co. v. Sayles,* 97 U.S. 554, 563 (1878), in which this Court said:

> "It will be observed that we have given particular attention to the original application drawings and models filed in the Patent Office by Thompson and Bachelder. We have deemed it

> proper to do this, because, if the amended application and model, filed by Tanner five years later, embodied any material addition to or variance from the original—anything new that was not comprised in that—such addition or variance cannot be sustained on the original application. The law does not permit such enlargements of an original specification, which would interfere with other inventors who have entered the field in the meantime, any more than it does in the case of reissues of patents previously granted. Courts should regard with jealousy and disfavor any attempts to enlarge the scope of an application once filed, or of a patent once granted, the effect of which would be to enable the patentee to appropriate other inventions made prior to such alteration, or to appropriate that which has, in the meantime, gone into public use."

The "late claiming" doctrine also had origins in *Muncie Gear Works Inc. v. Outboard Marine & Mfg. Co.*, 315 U.S. 759, 768 (1942), in which this Court said:

> "The claims in question are invalid if there was public use, or sale, of the device which they are claimed to cover, more than two years before the first disclosure thereof to the Patent Office. Cf. Chicago & N.W.R. Co. v. Sayles, 97 US 554, 557, 559, 563, 564, 24 L. ed 1053-1057; Schriber-Schroth Co. v. Cleveland Trust Co. supra (305 US 57, 83 L ed 39, 59 S Ct 8). Section 4886 of the Revised Statutes would in terms provide for their invalidity had they been offered by application rather than by amendment; and

> whatever may be the efficacy of an amendment as a substitute for an application, it surely can effect no more than the application itself."

In *Muncie Gear,* this Court recognized that the amendment of a pending patent application to claim a different invention than was originally claimed in the application has no more efficacy than presenting such subject matter in a new application. In *Sayles,* this Court recognized that such amendment of a pending application has no more efficacy than presenting the different invention in a reissue application. In *Sayles,* this Court made it plain that any attempt by a patent applicant to enlarge his patent application to cover developments by others prior to such enlargement was grounds for invalidating the patent, and that the doctrine of "late claiming" was not limited to the situation, as in *Muncie Gear,* in which prior "public use" was involved.

Since this Court's decision in *Muncie Gear,* almost thirty years ago, there has been wide controversy among legal writers, the lower courts, and attorneys as to the scope and effect of *Muncie Gear,* and whether, in fact, in that case this Court intended to enunciate any "late claiming" defense, and if so, what.[6]

There are several species of "late claiming" considered by the writers and the lower courts. First, there is the situation where a patent applicant adds new matter to his specification to support claims to it to cover a competitor's intervening device. This is uniformly condemned by the courts. Secondly, there is the

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[6]*See articles:* Karl W. Flocks and Sheridan Neimark, in Oct. 1968, "Journal of the Patent Office Society," pg. 676; Paul Gardner, in Summer issue, "Idea," 1965, Vol. 9, No. 2; and cases discussed in such articles.

situation where the patent applicant broadens his claims to cover a competitor's intervening device, which his original claims did not do, although no substantial change is made in the original specification. There has been wide divergence among the lower court decisions as to the effect of this on the validity of the new claims. There is thus a wide divergence between the lower courts as to what type of "late claiming" by a patent applicant will render claims later in suit invalid. Some of the lower courts have taken the beneficent attitude that "late claiming" is a mere give-and-take between the inventor and the Patent Office and does not invalidate the claims.[7] Others have taken the tougher attitude suggested by this Court in *Sayles* and *Muncie Gear* that such broadened claims are invalid for "late claiming."[8] Others have avoided the validity issue by merely interpreting the broadened claims as not infringed.[9]

Here, respondent Reeves provided the Government with the proposal of the McCoy device, although previously enjoined by the Government not to include any-

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[7]*Locklin v. Switzer Bros., Inc.*, 299 F. 2d 160 (CA 9th 1961); *Engineering Development Lab. v. RCA*, 153 F. 2d 523, 526 (CA 2d 1946); *Coats Loaders & Stackers, Inc. v. Henderson*, 233 F. 2d 915 (CA 6th 1956); *Sears Roebuck & Co. v. Jones*, 308 F. 2d 705, 708 (CA 10th 1962); *Trico Products Corp. v. Delman Co.*, 199 F. Supp. 231, 132 U.S.P.Q. 316, 334-335 (D.C. Iowa 1961).

[8]*Hazeltine Research, Inc. v. Zenith Radio Corp.*, 388 F. 2d 25 (CA 7th 1967); *Crown Machine & Tool Co. v. KVP-Sutherland Paper Co.*, ... F. Supp. ....., 155 U.S.P.Q. 309 (D. Ct. Cal. 1967); *General Electric Co. v. Hygrade Sylvania Corp.*, 61 F. Supp. 476 (DCNY 1944)).

[9]*S.S. Stafford, Inc. v. Thaddeus Davids Ink Co., Inc.*, 264 Fed. 111, 114 (CCA 2d 1920); *United Shoe Machinery Co. v. L. Q. White Shoe Co.*, 279 Fed. 35 (CCA 1st 1922); *Union Special Mach. Co. v. Willcox & Gibbs Sewing Mach. Co.*, 32 F. 2d 924 (D. Ct. Pa. 1929); *Harries v. Air King Products Co.*, 87 F. Supp. 572 (DCNY 1949).

thing in the proposal which Reeves regarded as a proprietary item, knowing that the Government might include the McCoy problem check concept in its computer specifications for bid by the major computer manufacturers. This the Government did, with the full knowledge and consent of Reeves. That respondent Reeves should thereafter belatedly add broadened claims to the McCoy application expressly for the purpose of covering competitors' device, obtain the McCoy patent containing such claims, and then assert the expanded monopoly against the Government and the analogy computer industry, is offensive to the Constitutional prerogative accorded inventors and to the legal principles of *Sayles* and *Muncie Gear*.

In this case, this Court should reenter the arena of judicial decision as to patents, to resolve the existing confusion as to the "late claiming" defense and make it plain that, under the Constitution and this Court's prior decisions, any attempt by a patent applicant to broaden the claims of his application solely to cover devices of his competitors invalidates such claims, particularly where (as in this case) the device had gone into public use, was on sale, and had been described in a printed publication prior to the one year ban prescribed by 35 U.S.C. 112(b), whether such prior use, etc. was by the patent applicant or anyone else. It is not in the public interest that a patent applicant, such as McCoy here, should be permitted to broaden his claims solely to cover intervening competitors' devices not covered by the original claims of his application, thus subjecting an entire industry to the expanded monopoly. If such a practice has achieved widespread legitimacy thirty years after *Muncie Gear*,

as asserted by respondent,[10] it is high time for a definitive decision by this Court to put an end to such a practice.

The Court of Appeals Erred in Failing to Apply the Correct Test of Invention.

The Court of Appeals erred in enunciating and applying a standard of invention which ignores the time-honored doctrine of "aggregation" as a grounds for invalidating a patent.

It has long been the law that a mere aggregation of old elements is unpatentable where all of the elements operate in the same way they did in the prior art to perform nothing more than the aggretate of their separate old results, where none changes the operation of any of the others, even if the aggregation produces a better machine or instrument than was formerly in use.[11]

It was applied in *Great A. & P. Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 152 (1950), in which this Court said:

> "The conjunction or concert of known elements must contribute something; only when the whole in some way exceeds the sum of its parts is the accumulation of old devices patentable."

Each of the foregoing cases involved a patent on a mechanical device. The same rule has been widely

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[10]Respondent's brief (p. 38) to the Court of Appeals asserted that such practice "is no more than an expression of the perfectly legitimate objective of all patent solicitors to cover all modes of practicing the invention. . . ."

[11]*Hailes v. Van Wormer*, 87 U.S. 353, 368 (1873); *Pickering v. McCullough*, 104 U.S. 310, 318 (1881); *Burt v. Evory*, 133 U.S. 349, 358 (1890); *Brinkerhoff v. Aloe*, 146 U.S. 515, 516 (1892); *Lincoln Engineering Co. v. Stewart Warner Corp.*, 303 U.S. 545, 549 (1938).

applied to patents covering electrical circuits (as is the McCoy patent here in suit).[12]

In *Anderson's-Black Rock Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 61 (1969), this Court most recently recognized and applied the foregoing rule of "aggregation [without expressly so denoting it]" and emphasized that there must be some synergism, or "synergistic effect," resulting from a combination of old elements, as follows:

> "A combination of elements may result in an effect greater than the sum of the several effects taken separately. No such synergistic result is argued here."

The original Opinion of the Court of Appeals [Appendix, pp. 4-28] made no reference to any "unusual or surprising consequences" resulting from the grouping of old elements of the McCoy patent. The Opinion, as amended [Appendix, pp. 29-31], pays lip service to the requirement of *Great A. & P.* that in the McCoy patent the grouping of old elements produces "unusual or surprising consequences," yet it wholly fails to indicate what is unusual or surprising about the asserted results produced by the McCoy device. The Opinion wholly fails to indicate any "synergistic result" of the combining of old elements in the McCoy patent, as re-

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[12]*National Electric Signal Co. v. City of Electra*, 108 F. 2d 37 (CCA 5th 1939; cert. denied 309 U.S. 686); *NES Co. v. City of Waco*, 90 F. 2d 497 (CCA 5th 1937); *Bilofsky v. Westinghouse Electric Supply Co.*, 160 F. 2d 154 (CCA 2d 1947); *General Radio Co. v. Kepco, Inc.*, 435 F. 2d 135 (CA 2d 1970); *Bryant Electric Co. v. Industrial Electronics Corp.*, 96 F. Supp. 601 (D.C.N.J. 1951); *Burt v. Bilofsky*, 120 F. Supp. 822 (D.C. N. J. 1954); *National Transformer Corp. v. France Mfg. Co.*, 124 F. Supp. 503 (D.C. Ohio, 1952; Aff'd. 215 F. 2d 343); *Hubner v. Sunbeam Corp.*, 320 F. Supp. 298 (D.C.N.Y. 1970).

cently required by *Black Rock*. It wholly fails to find that the claimed combination of old elements in McCoy results in anything more than the sum of such elements, as required by the "aggregation" decisions of this Court cited and quoted above.

In *Graham*, this Court emphasized that 35 U.S.C. §103 made no change in "the general strictness with which the overall test [of patentability] is to be applied." Yet the Court of Appeals here has greatly relaxed the test of the patentability of a grouping of old elements by, in effect, refusing to consider or determine whether the old elements of the McCoy patent operate any differently in the claimed combination than they did individually in the prior art, whether the sum of the results of such elements in the claimed combination is any different in kind than the sum of the claimed elements individually, and whether there is any "synergistic" result of the claimed combination of the old elements in McCoy.

The Court of Appeals here merely finds that the subject matter of the McCoy patent "as a whole" would not "have been obvious . . . to a person having ordinary skill in the art . . .", relying only on its finding that others skilled in the art had sought but failed to suggest the McCoy solution to the problem, which was at most a rearrangement of old elements. The Court of Appeals here, in finding nonobviousness of the McCoy concept relies solely upon the asserted "long felt but unsolved needs" and "failure of others," specified in *Graham* (p. 382) as "secondary considerations" which may have relevancy as "indicia of obviousness or nonobviousness." However, such secondary considerations "without invention will not make patentabil-

ity," as held by this Court in *Great A & P* and *Black-Rock.*

Under the Court of Appeals test of obviousness, a lower court may merely find (a) differences between the subject matter of the claims in suit (regardless of how trivial), and the prior art, (b) the level of skill in the art, and (c) that one of the secondary considerations referred to in *Graham* has been fulfilled, and then, without considering the other factors in the long established law of aggregation, hold that "as a whole" the subject matter is not obvious and therefore is patentable. This, obviously, jettisons a large body of law as to patentability of combinations of old elements, and greatly relaxes the standard of patentability as to such combinations of old elements. It forecasts a plethora of decisions by the lower courts, at least in the Ninth Circuit, holding patents valid where such patents do not meet the standards prescribed by this Court to be applied to claimed combinations of old elements, of *Great A & P* and *Black-Rock.*

In *Great A. & P.* the Court indicated the desirability of a specific finding of fact by the courts below, as follows:

> "Neither court below has made any finding that old elements which made up this device perform any additional or different function in the combination than they perform out of it."
>
> * * *
>
> "A patent for a combination which only unites old elements with no change in their respective functions, such as is presented here, obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men."

It has long been the rule in the Ninth Circuit that a judgment sustaining a patent for a combination of old elements cannot stand in the absence of such an express finding of fact that the old elements perform an additional or different function in the claimed combination than they perform out of it.[13]

There is no finding of fact by either court below that any of the old elements of the claims of the McCoy patent operate any differently in the claimed combination than they did out of it, and, indeed, no such finding could possibly be made in this case because each of the elements of the McCoy claims operates exactly the same in the claimed combination as it did in the prior art. This Court should issue the writ and make it plain that, under *Great A. & P.* and *Black Rock*, to sustain the validity of a patent to a combination of old elements, there must be findings of fact to the effect that the claimed combination exceeds the sum of the individual elements, that in the claimed combination at least some of the elements operate differently than they did separately in the prior art, that there is some synergistic effect as a result of the combining of the old elements, and that in the absence of such findings a judgment sustaining the validity of a patent on such a combination of old elements cannot stand.

The Court of Appeals here completely rejects any inquiry into the function of the individual elements of a grouping of such elements, as required by *Great A & P*, stating: "It [Petitioner's interpretation of *A & P*] suggests an analytical approach to patentability which

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[13]*Kwikset Locks, Inc. v. Hillgren*, 210 F. 2d 483 (CA 9th 1954); *Bergman v. Aluminum Lock Shingle Corp.*, 251 F. 2d 801 (CA 9th 1958); *Santa Anita Mfg. Corp. v. Lugash*, 369 F. 2d 964 (CA 9th 1966).

is directly contrary to the statutory language of 35 U.S.C. §103 which provides that the inquiry into patentability must be drawn toward the 'subject matter as a whole' *and not to the elements of a claimed combination* and their individual novelty." (Emphasis added). Obviously, neither Section 103 nor *Great A & P* interpreting it bars such an inquiry into the question as to how the elements of a claimed combination of old elements operate any differently in the claimed combination than they did in the prior art, whether they interact to produce a result which exceeds merely the sum of those of the individual elements, and whether there is any synergism or synergistic effect resulting from their claimed combination, all as required by the decisions of this Court above. In fact, such approach by the Court of Appeals is directly contrary to such decisions of this Court and eliminates from the test of patentability any such inquiry. It is also contrary to the earlier decision of the Ninth Circuit in *Jeddeloh Bros. Sweed Mills, Inc. v. Coe Manufacturing Co.*, 375 F. 2d 85 (1967) in which the Court properly made a full analysis of whether the old elements of the claim there in suit operated any differently in the claimed combination than they did out of it. There is thus a hiatus between the recent decisions of the Ninth Circuit as to the test of patentability of a claimed combination of old elements, as well as a conflict between the test applied by it in this case and the decisions of the Supreme Court.

Thus, the interpretation by the Court of Appeals of 35 U.S.C. §103 amounts to a substantial lowering of the standards of invention enunciated by this Court, and, petitioner suggests, this Court should exercise its inherent power of supervision by issuing the writ sought

here to correct this situation and to reaffirm the strict standard of invention to be applied to patents for combinations of old elements.

Conclusion.

For the foregoing reasons, we respectfully submit that this petition for a writ of mandamus, or alternatively a writ of certiorari, should be granted.

Dated: September 8, 1971.

Respectfully submitted,

FORD W. HARRIS, JR.,
Attorney for Petitioner.

Of Counsel:
LOUIS J. KNOBBE,
ROBERT J. STEINMEYER.

APPENDIX.

Interlocutory Judgment.

In the United States District Court for the Central District of California.

Reeves Instrument Corporation and Dynamics Corporation of America, Plaintiffs, v. Beckman Instruments Incorporated, Defendant. Civil Action No. 64-135-HP.

This cause, having been tried before the Court, sitting without a jury, the plaintiffs having been represented by their counsel, Morgan, Finnegan, Durham & Pine, George B. Finnegan, Jr., Thomas P. Dowling, and Alfred P. Ewert, and Christie, Parker & Hale, M. Roy Spielman, the defendant having been represented by its counsel, Fowler, Knobbe & Martens, Louis J. Knobbe, and Hahn, Cazier, Thornton & Hoegh, Richard B. Heogh, and the cause having been tried and submitted for decision upon the issues raised by plaintiffs' complaint and the defendant's answer thereto, and the Court having rendered its decision on June 7, 1968, and having made its findings of fact and conclusions of law, good cause appearing therefor,

IT IS HEREBY ORDERED, ADJUDGED, AND DECREED:

1. That plaintiffs own all right, title and interest in and to Letters Patent No. 2,967,997, together with all rights of action for infringement thereof.

2. That claims 7, 8, and 13 of Patent No. 2,-967,997 are valid.

3. That, as charged in plaintiffs' complaint, defendant has infringed claims 7, 8, and 13 of said Patent No. 2,967,997 by making, using, and selling its

Series 2100 and 2200 analog computers with the Derivative Check feature.

4. That plaintiffs are entitled to damages from defendant for the infringement pursuant to the provisions of 35 U.S.C. 284, the damages to be adequate to compensate for the infringement but to be limited to the amount assessed.

5. That defendant, its officers, agents, servants, employees and those other persons, companies or corporations in active concert or in participation with them, be, and each of them is hereby enjoined from making, causing to be made, or offering or threatening to make, or using or causing to be used, or offering or threatening to use, or selling or causing to be sold, or offering or threatening to sell, or contributing to the making, using or selling of the apparatus patented in and by each of claims 7, 8, and 13 of Letters Patent No. 2,967,997 for the remainder of the term of said Letters Patent.

6. That this cause be, and hereby is referred to a Master *pro hac vice* pursuant to Rule 53 of the Federal Rules of Civil Procedure, the Master to be named by the Court on submission of the name of an attorney agreed to by the parties or a list of attorneys in the event the parties cannot agree on one name, with directions to hear all relevant evidence on the amount of damages to be assessed and to report to the court his findings of fact and conclusions of law with respect to such damages.

7. That plaintiffs be awarded their costs of suit in the sum of $8998.15.

Dated this 26th day of November, 1968.

/s/ Harry Pryerson
United States District Court Judge

Approved or disapproved as to form this 26th day of November, 1968.

Hahn, Cazier, Thornton & Hoegh
By /s/ Dennis B. Haase

Copy of the foregoing Interlocutory Judgment received this 14:28 hour, on the 26th day of November, 1968.

HAHN, CAZIER, THORNTON
& HOEGH
By /s/ Dennis B. Haase

Presented BY:
CHRISTIE, PARKER & HALE
By M. Roy Spielman
M. Roy Spielman
Attorneys for Plaintiffs

Opinion of the United States Court of Appeals for the Ninth Circuit.

United States Court of Appeals for the Ninth Circuit.

Reeves Instrument Corporation and Dynamics Corporation of America, Plaintiffs-Appellees, v. Beckman Instruments, Incorporated, Defendant-Appellant. No. 24,060.

[April 27, 1971]

Appeal from the United States District Court for the Central District of California.

Before BARNES, DUNIWAY and WRIGHT, Circuit Judges. WRIGHT, Circuit Judge:

Beckman Instruments appeals a decision of the district court which held that its analog computer check circuit infringed claims 7, 8, and 13 of U.S. Patent No. 2,967,997. We affirm.

I. THE PATENT IN SUIT.

U. S. Patent No. 2,967,997 (hereinafter the "McCoy patent") was issued to Rawley D. McCoy on January 10, 1961 as the result of an application filed April 20, 1955. All right, title and interest in the McCoy patent has been assigned to appellee Dynamics Corporation of America, of which appellee Reeves Instrument is a division.

The McCoy patent is entitled "Method and Apparatus for Checking Electronic Analog Computers" and deals generally with the problem of checking the

operation of the numerous elements of an analog computer prior to utilization of the computer to solve complex industrial problems of a generally mathematical nature.

Electronic analog computers were initially developed following World War II and played an important role in the design of complex aircraft, weapons systems and space vehicles. Such computers are designed to solve a variety of problems by performing the mathematical operations required to analyze complex physical relationships.

Since a general purpose analog computer is designed to solve a variety of problems, it consists of a number of building blocks which can be interconnected in accordance with the mathematical definition of the problem to be solved. These building blocks include multipliers, summers, function generators and integrators. Perhaps the single most prevalent element in such computers is the integrator which can also be connected to perform other desired mathematical functions.

In order to program a general purpose analog computer for solution of a problem, it is necessary physically to interconnect the integrators and other elements in accordance with the problem definition. In addition to interconnection, the parameters of the problem are established by setting potentiometers to represent the various physical constants, etc., for the problem.

From this brief review, it is apparent that the interconnection of the elements as well as the potentiometer

settings are vitally important to proper operation. Because such computers are designed to solve complex problems, it usually is not possible to determine whether the computer is properly programmed by examining the answers obtained. Rather, it is necessary to make some sort of initial verification of the programming before one may have confidence in the correctness of the solution. Certain visual checks of interconnection, potentiometer settings, etc., can be used to perform limited checking of the programming but in the final analysis it is necessary to perform some kind of operational check since connections that appear sound can be faulty, potentiometer settings may not reflect the actual value of the resistance, etc.

There were numerous attempts prior to McCoy to derive a satisfactory method of checking the computer prior to attempted solution of a problem. During trial, defendant Beckman introduced evidence of some 15 different prior art approaches to computer checking of which three are relied upon on appeal and discussed in detail in Section II, *infra*. Suffice it to say that the problem of checking analog computers was born with the development of such computers and has since occupied much time and effort in the computer industry.

The McCoy patent discloses and claims two different types of checks for analog computers: a static check and a dynamic check. The claims involved in this appeal deal only with the static check portion of the McCoy patent. Figure 1 hereof is a reproduction

of Fig. 2 of the McCoy patent and illustrates an exemplary embodiment, including the static check portion of the McCoy disclosure.

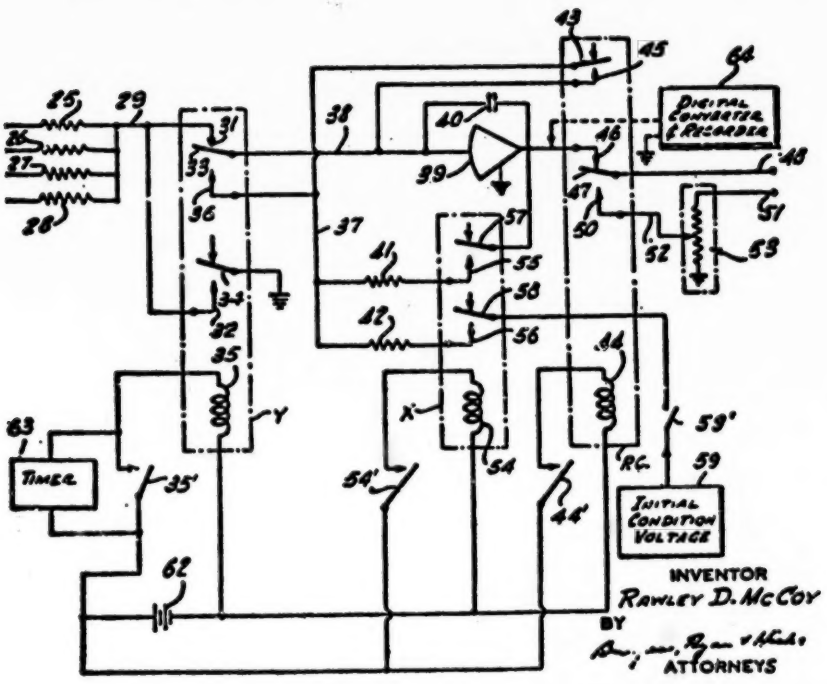

FIGURE 1

As illustrated, the amplifier 39 and condenser 40 constitute the basic electronic integrator of the type now used in analog computers. As is well known, the output of the amplifier 39 will be the integral with respect to time of the signal at its input.

In actual operation, the signal to be integrated by amplifier 39 and condenser 40 is generally the sum of other signals as determined by the program. These other signals must first be summed prior to integration and this is done by the summing resistors 25,26,-27,28. The summed signal passes through the con-

tacts 31,33 of the "Y" relay and forms the input to the electronic integrator. The integrated output signal, in turn, passes through contacts 46,47 of the "P.C." relay to output terminal 48 from where it is relayed to other sections of the computer in accordance with the problem program.

During operation of the computer for problem solving, the X, Y, and P.C. relays are de-energized and the circuit is operated as shown. To perform the static check, the McCoy patent utilizes the X and P.C. relays to modify operation and provide for checking of the program prior to actual problem solving. The Y relay is used only for the so-called "dynamic check" which is not involved in the claims whose validity and infringement are now in question.

To carry out the desired static check, the X and P.C. relays are energized at the appropriate time by a timer 63. With the X and P.C. relays energized, the amplifier 39 no longer acts as an integrator since a shunt resistor 41 is placed in parallel with the integrating condenser 40 via contacts 55,57 of the X relay and contacts 43, 45 of the P.C. relay. When the shunt resistor 41 is placed in parallel with the integrating condenser 40, amplifier 39 acts essentially as a simple electronic multiplier.

In addition, energization of the P.C. relay disconnects the output of amplifier 39 from output terminal 48 and substitutes a fixed voltage from voltage source 53 in its place. This is accomplished by connecting movable contact 47 to contact 50 and disconnecting movable contact 47 from contact 46. Since the X and P.C. relays are simultaneously energized for all integrators in the computer, the outputs of all of the in-

tegrators (as they appear on output terminal 48) become fixed voltages established by the pre-determined settings of the potentiometers 53 in each integrator.

In this way, the interconnections between the integrating amplifiers are broken to "open the loop." Fixed voltages are substituted for the outputs of the integrating amplifiers and these fixed voltages circulate through the interconnections to form the inputs to other integrators in the circuit. Since these voltages are both fixed and known, it is possible to predict what the input to each integrator must be if the problem is properly programmed and the potentiometer values properly established.

In the static check, the input to each integrator is checked. In the exemplary embodiment illustrated in the McCoy patent, the input to each integrator is checked by a digital converter and recorder 64 which is connected to the output of amplifier 39. Amplifier 39 no longer acts as an integrator because of the shunt resistor 41, but rather as a simple multiplier circuit. Its output voltage is thus representative of the input signal to the integrator. This voltage may be digitized and either manually or automatically checked with previously computed values to ascertain whether computer interconnections, potentiometer settings, etc., are proper.

The claims in issue on appeal deal with the static check portion of the McCoy patent. Claim 7 is the broadest of the three and provides:

> 7. In an analog computer including an integrating circuit, said integrating circuit having input and output terminals coupled to the remaining elements of said analog computer for forming a

closed-loop feedback system, the combination for testing the analog computer system comprising

switching means coupled to said integrating circuit, said switching means opening the loop of the feedback system and rendering said integrating circuit ineffective,

means supplying a fixed voltage to the opened-loop system, said fixed voltage being translated through said opened loop system to the input of said integrating circuit, and

means coupled to the opened-loop system for measuring the voltage appearing at the input of said integrating circuit.

The essence of McCoy's contribution is thus defined in claim 7 as including switching means to open the loop and render the integrator ineffective, followed by circulation of a fixed voltage through the open loop system and measurement of the voltage which appears at the input to the integrator. Claims 8 and 13 are similar but more detailed in their recitation of the elements of the claimed combination.[1]

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[1]Claims 8 and 13 provide:

8. In an analog computer including an integrating circuit having an amplifier with input and output terminals and a common terminal, said integrating circuit including condenser means coupled between the input and output terminals of said amplifier and further including an input resistor coupled in series with the input of said amplifier, said integrating circuit being coupled to the remaining elements of said analog computer for forming a closed-loop feed-back system, the combination for testing the analog computer system comprising shunt resistor means, switching means coupled to said integrating circuit and said shunt resistor means, said switching means opening the loop of the feedback system and coupling said shunt resistor means across said condenser means, means supplying a fixed voltage to the opened-loop system, said fixed voltage being translated through said opened-loop system to the input of said integrating circuit, and means coupled to the opened-loop system for measuring the

II. *THE PRIOR ART.*

a. *The Initial Condition (I.C.) Static Check.*

The first item of prior art relied upon by Beckman is the so-called Initial Condition (I.C.) static check. This method of checking analog computers originated admittedly more than one year prior to the filing date of the McCoy patent, to constitute a valid reference under 35 U.S.C. §§ 102, 103.

The initial condition circuitry of an analog computer is used primarily for the purpose of establishing certain predetermined initial conditions in conformity with the problem to be solved by the computer. That is, certain variables in the problem will have non-zero initial conditions so that the voltage appearing on some (but usually not all) integrators in the system must begin at some value other than zero. An exemplary circuit for establishing the required initial conditions is

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voltage appearing between the input terminal of said input resistor and said common terminal.

13. Apparatus for testing an analog computer including at least one integrating circuit, said integrating circuit having an input coupled to first terminal means of the remaining elements of the computer and an output coupled to second terminal means of the remaining elements of the computer to form a closed-loop system, the input of said integrating circuit including a series input resistor, comprising in combination, means including switching means coupled to said integrating circuit, a source of known voltage coupled to said switching means, said switching means rendering said integrating circuit ineffective and supplying a known voltage to said second terminal means of the computer, said known voltage being translated through the remaining elements of the computer to the series input resistor of said integrating circuit, and measuring means including amplifier means coupled to said series input resistor for measuring the response of the remaining elements of the computer to said known voltage.

illustrated in Figure 2, a reproduction of Figure 7.2(a) of *Korn & Korn, Electronic Analog Computers* (1952).

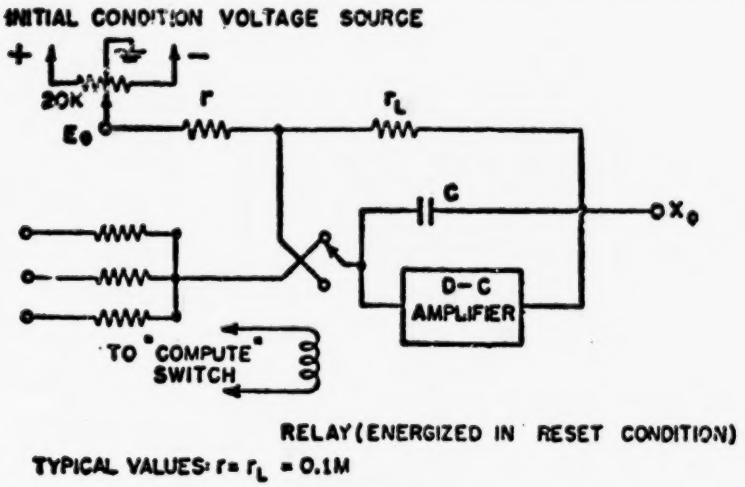

FIGURE 2

Under ordinary circumstances, the input resistors are connected directly to the input of the D-C amplifier because the relay is not energized. In order to establish the desired initial condition, the relay is energized. This places the leakage resistor r_L in parallel with the integrating capacitor C. The initial condition voltage source is present at the desired initial condition voltage E_o which is fed through the input resistor r_L. Since the input resistor r and the leakage resistor r_L are typically equal in value, the output voltage X_o and remain at that value after the relay is de-energized.

The initial condition voltage circuit is also present in the disclosure of the McCoy patent and is illustrated by the Initial Condition Voltage source 59, resistor 41, input resistor 42, and relays X and Y which jointly accomplish the function of the relay of Figure 2.

It was established at trial that certain aspects of an analog computer could be checked by applying the initial condition voltage as set forth above and then making certain measurements within the loop (which is opened at the input to each integrator) prior to de-energizing the relay and proceeding with the desired computation. It was, however, equally established that this approach to checking had two substantial disadvantages.

The first disadvantage to this approach stems from the fact that not all integrators in a given problem will require an initial condition voltage so that, in order to check the circuitry associated with these integrators, it would be necessary to establish some initial condition voltage for checking purposes. This voltage would, however, have to be removed prior to running the problem. The chance that the computer operator might forget to remove these checking voltages adds an extra source of possible human error into the system.

The second disadvantage to this approach stems from the fact that it can check only limited portions of the loop. Particularly troublesome is the fact that it was not possible to check the crucial connections on the patchboard which connect the input resistors to the integrators nor was it possible to check the integrator summing junctions since the loop is opened at the *input* to each integrator.

In sum, this check was incomplete and, as found by the district court, caused "a disturbance of the

problem set-up and an aggravation of the human error problem." Indeed, a Beckman publication characterized these as the "two major loopholes" of the I.C. static check.

b. *The Martin Check.*

The second item of prior art relied upon by Beckman is the so-called "Martin check" developed by Betty Lou Wilder of the Martin Company in 1953 and which constitutes an item of prior art in existence more than one year prior to the filing date of the McCoy patent.

Without detailed illustration, it suffices to say that an integrator circuit in an analog computer ordinarily serves two separate functions. It first sums the signals applied to its input resistors and then integrates that sum. The Martin technique separated these two functions by providing an additional amplifier which acted as a summer. The output of this amplifier was the sum of the signals applied to the input resistors and was fed through a single input resistor to a second amplifier which integrated that sum.

The Martin check then followed the basic approach of the I.C. check but had the additional capability of allowing a check of the input resistors since it was possible to check the output of the summing amplifier when the initial condition voltage was applied to the preceding integrator in the circuit.

Thus, while the Martin check did somewhat expand the capabilities of the I.C. check it retained all

of the first disadvantage (disturbance of the problem set-up) referred to above in that it was still necessary to apply some sort of initial condition voltage to those integrators where the problem called for none. Further, the Martin check was still incomplete in that it failed to check the crucial interconnection between the summing amplifier and the integrator and its input resistor.

The district court found that the Martin check was "basically the I.C. check and has the same shortcomings." We agree completely with that analysis of this item of prior art and conclude that the differences between it and the McCoy patent are essentially the same as those differences discussed above with respect to the prior art I.C. check.

c. *The M.I.T. Check and the Jatras Thesis.*

In 1945, Massachusetts Institute of Technology began construction of a large analog computer facility, ultimately completed in 1948. That facility functioned essentially as do more contemporary versions of the analog computer but utilized electromechanical integrators rather than the electrical integrator circuits now in almost universal use. This difference does not, however, mean that the efforts and/or results at M.I.T. are not pertinent as to the patentability of McCoy's invention since the McCoy patent is not limited to electrical integrators and the problems which require checking are essentially the same whether the integrators are electrical or electromechanical.

Figure 3 hereof illustrates one of the integrators of the M.I.T. facility with its associated circuitry.

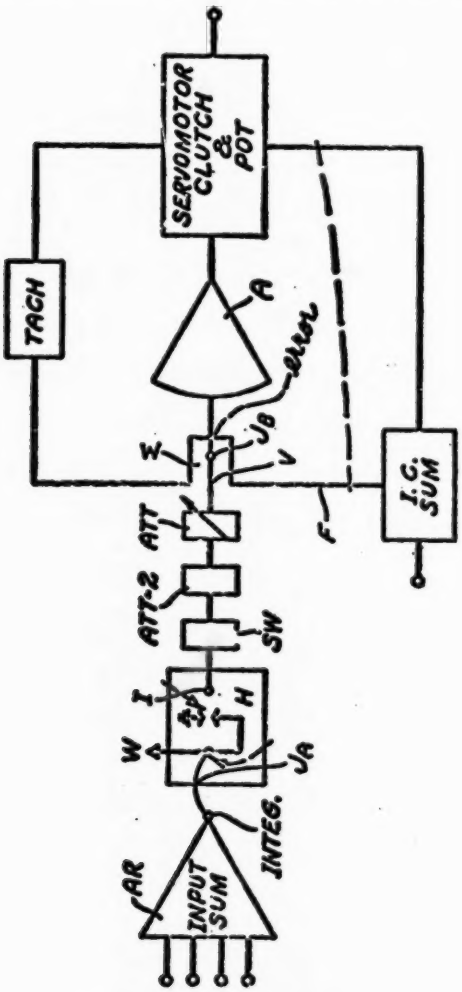

FIGURE 3

The electromechanical integrator of the M.I.T. facility includes the amplifier A, the tach, and the servomotor clutch and pot. The input signals to be integrated are first fed to a summing amplifier AR whose output is connected to a first switch (shown enclosed in the box with the letter H) which operates to open the loop. The output of this switch is fed to a second

switch SW which is, in turn, connected to a first attenuator ATT-2 and a second attenuator ATT. The output of this second attenuator ATT forms the input to the electromechanical integrator.

The static check used at M.I.T. was essentially the same as that used in the I.C. and Martin checks referred to above. A fixed voltage was applied from the block labelled "I.C. Sum" to the input to the amplifier A which resulted in a rotation of the servomotor to establish some initial condition voltage. This voltage then circulated through other elements of the system to the input sum amplifier AR of the next integrator circuit where it was measured, among other places, at point W of switch H.

There was some controversy in the testimony on whether the checking approach used at M.I.T. required disturbance of the computer in order to supply check voltages for those integrators whose initial condition did not require such voltage. We need not, however, attempt to resolve this controversy since it is admitted by both parties that a Master's degree thesis written by Stephen Jatras, an M.I.T. graduate student, proposed a system where checking could be accomplished automatically without disturbing the problem set-up. This thesis was published in 1952 and is thus a part of the prior art as regards the McCoy patent.

As noted above, the M.I.T. system, even as automated by the Jatras thesis, checked only as far as the output of the input sum amplifier AR. This meant that, for each of the many integrators involved in a particular problem set-up, the switch SW, the attenuators ATT-2 and ATT, and their interconnection as well as the connections to the electromechanical integrator were not checked. The result is that the M.I.T. and Jatras

checks failed to check the voltage appearing at the input to the integrating circuit, a specific requirement of each of the claims in suit[2] and a substantial advantage of the checking system as taught by McCoy.

The district court found that "[i]n principle and in result the MIT procedures were the same as the I.C. check." We agree.

III. *THE QUESTION OF OBVIOUSNESS.*

On appeal, Beckman's primary contention is that the McCoy patent claims involved are invalid for obviousness as defined in 35 U.S.C. §103. Other defenses, including late claiming, were urged before the district court but are not relied upon in this appeal and thus will not be discussed.

a. *The Applicable Standard.*

To be patentable, an alleged invention must be shown to be new and useful per 35 U.S.C. § 101 and nonobvious under 35 U.S.C. §103. The requirement of novelty is more specifically defined in 35 U.S.C. § 102 and Beckman suggests in passing that we might find the McCoy patent invalid as fully anticipated by one or more of the prior art check systems discussed in full in Section II, *supra*. We think it clear that the McCoy patent is not anticipated by the prior art and pass on to the more substantial question of obviousness.

The Statutory requirement of nonobviousness is found in 35 U.S.C. §103 which prohibits the patenting of an invention, even though not identically shown in the prior art, if "the differences between the subject matter

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[2]*See* Section I, *supra*. Specifically, claim 7 calls for "means . . . for measuring the voltage appearing at the input of said integrating circuit." Claims 8 and 13 call for measurement at the input resistor terminal.

sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

Beckman's initial contention here is that the McCoy patent is somehow invalid on its face, without regard to the prior art, in view of *Great Atlantic & Pacific Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147 (1950). Specifically, we are warned to scrutinize carefully those patents which include combinations of elements which are individually old in light of the alleged improbability of finding invention in such a combination. The argument is that the McCoy patent fails to satisfy the constitutional standard of patentability enunciated in A&P because the claimed invention consists of old elements (amplifiers, potentiometers, switches, etc.) which operate within the claimed combination in the same fashion as they have always operated in the prior art.

This argument fails on two grounds. First, it misconstrues the import of the *A&P* decision. Second, it suggests an analytical approach to patentability which is directly contrary to the statutory language of 35 U.S.C. § 103 which provides that the inquiry into patentability must be drawn toward the "subject matter as a whole" and not to the elements of a claimed combination and their individual novelty.

The claims in issue here are, in statutory language, "machine" claims.[3] They define a new "machine" which

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[3]35 U.S.C. §101 defines five distinct statutory classes of inventions and provides in part that "whoever invents or discovers any new and useful *process, machine, manufacture, or composition of matter,* or any new and useful *improvement thereof,* may obtain a patent therefor. . . ."

is composed of certain defined elements in combination. Carried to its logical conclusion, the argument here would result in a rule to the effect that *A&P* precludes the patenting of virtually every new mechanical or electrical device since the vast majority, if not all, involve the constructtion of some new device (or machine or combination) from old elements.[4]

The Court's decision in *A&P*, despite the sweeping and oft-cited language quoted in Beckman's brief, amounts to nothing more than a finding that the simple combination of old elements involved there were so similar to previous uses of similarly constructed devices that the differences were obvious in *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969) supports this interpretation of the *A&P* decision. *Black Rock* involved a similarly simple combination of old elements. The Court found that there was no invention when viewed by the "obvious-nonobvious standard." *Id.* at 63. Moreover, the Court in *Black Rock* reaffirmed the position it had previously taken in *Graham v. John Deere Co.*, 383 U.S. 1 (1966) to make clear that the crucial question in determining obviousness is whether the differences between the subject matter sought to be patented, as a whole, and the prior art are obvious to a man of ordinary skill in the art.

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[4]Carried even further, there is doubt that anything would be patentable. Not only are all mechanical and electrical devices constructed of old elements but all chemical products are the result of combining known chemical elements. To continue to reduce patentability with a view toward uses of old elements would ultimately lead to the conclusion that those "inventions" which survive are unpatentable because they amount to no more than a discovery of something which already existed in nature. *See Vitamin Technologists, Inc. v. Wisconsin Alumni Research Foundation*, 146 F.2d 941 (9th Cir. 1944).

From an analytical view, the most definitive statement of the requirement of nonobviousness and the approach to be taken by federal courts in determining this question is found in *Graham v. John Deere Co.*, 383 U.S. 1 (1966).

> "Under [35 U.S.C.] §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." *Graham v. John Deere Co., supra,* at 17.

This court has consistently followed the analysis as thus prescribed in *Graham*, noting that "the entire tenor of the *Graham* decision is that there should be strict observance of all three explicit conditions precedent to the issuance of a patent, namely novelty, utility and nonobviousness, with special emphasis being placed on the latter." *Jeddeloh Brothers Sweed Mills, Inc. v. Coe Manufacturing Co.*, 375 F.2d 85, 87 (9th Cir. 1967). *See also Ashcroft v. Paper Mate Mfg. Co.*, 434 F.2d 910 (9th Cir. 1970); *Schwinn Bicycle Co. v. Goodyear Tire & Rubber Co.*, ... F.2d ...., No. 23,950 (9th Cir., Dec. 22, 1970).

The claims involved in this case appear in Section I, *supra,* and the prior art relied upon by Beckman is set forth in Section II. As for the differences, we have already noted that the prior art methods of accomplishing the claimed static check failed to check at the input to the integrator. The claims in issue here all require checking at the integrator input.[5]

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[5]*See* note, 1, *supra,* and accompanying text.

Whether this difference rises to the level of patentability depends upon the level of ordinary skill in the pertinent art. It is difficult to set forth any meaningful quantitative evaluation of the level of skill in a given art. Rather, such determination can be made only by an analysis of the problem allegedly solved by the invention and the efforts of others to arrive at a satisfactory solution. In this respect, the Supreme Court has noted that "[s]uch secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." *Graham v. John Deere Co., supra* at 17-18.

The magnitude of the checking problem in general purpose analog computers is well demonstrated by the number of prior art attempts presented to the district court. Our review of the record reveals some fifteen approaches to the problem solved by the McCoy patent. When the evidence shows that several others in the art have attempted to solve the same problem and have not arrived at the solution claimed by the patent in suit, the statutory presumption of validity[6] is substantially strengthened.[7]

Evidence of the magnitude of this problem and the efforts directed at solving it is particularly strong as regards the research conducted at one of the nation's leading technical institutions, Massachusetts Institute of Technology. As noted above, M.I.T. developed and

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[6]"A patent shall be presumed valid. The burden of establishing invalidity of a patent shall rest on a party asserting it." 35 U.S.C. § 282.

[7]*Neff Instrument Corp. v. Cohu Electronics, Inc.*, 298 F.2d 82, 87 (9th Cir. 1961).

constructed one of the first general purpose analog computers.

There was extensive testimony during the trial in this case of the existence of this problem and the efforts of personnel at M.I.T. to derive a satisfactory method of checking its computer which did not disturb the problem set-up and constituted a thorough check of interconnections, potentiometer setting, etc.

We have discussed the work of an M.I.T. graduate student, Stephen Jatras.[8] Jatras testified during the trial and his Master's thesis was introduced in evidence. The total effect of the testimony and thesis shows that Jatras conducted a detailed study, complied extensive data on machine failures and their detection and wrote a lengthy thesis which essentially concluded that automation of the then existing procedures was the best approach he could devise.

His efforts, along with those of Tremblath, Mathews and Seifert, clearly establish the existence of a problem which had plagued the computer industry since the development of complex analog computers. Substantial efforts by others in the art which fail to accomplish the result achieved by the patented invention are persuasive indications of nonobviousness.[9]

The "circumstances sourrounding the origin of the subject matter" of the McCoy patent are perhaps best demonstrated by the sequence of events surrounding the construction of a large analog computer facility at Wright Air Development Center (WADC). In

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[8]See Section II(c), *supra.*

[9]*Neff Instrument Corp. v. Cohu Electronics, Inc.*, 298 F.2d 82, 87 (9th Cir. 1961). (*See also Colgate-Palmolive Co. v. Carter Products, Inc.*, 230 F.2d 855 (4th Cir.) *cert. denied* 352 U.S. 843 (1956).

1954, WADC was contemplating the construction of an analog computer facility of a size and complexity far in excess of anything previously built.

L. M. Warshawsky was the chief of the computer operation at WADC and a man with considerable experience and expertise in the field of analog computers. In July, 1954, Warshawsky wrote to Reeves, Beckman, and other large analog computer manufacturers and invited their proposals for specifications for the new WADC machine. The request called for a better approach to computer checking to minimize human and machine errors. The impetus to produce something new for the project was substantial since the opportunity to construct the world's largest and most advanced analog computer was at stake.

In response to the request, Reeves, Beckman, and three others proffered their ideas. While there were other matters involved in the proposal, the portions dealing with computer checking as submitted by Beckman and the other companies were essentially limited to prior art approaches. The Reeves proposal, on the other hand, included the problem check of the McCoy patent. This proposal was adopted by WADC and incorporated into the specifications of the computer ultimately built by Reeves and still in use at WADC.

Warshawsky testified at the trial to his reaction to the problem check proposal of McCoy. In addition to recognition of the potential and simplicity of the McCoy approach, Warshawsky said that he and his colleagues had "wondered why didn't we think of this ourselves."

In short, we believe that the extensive efforts at M.I.T., the additional efforts in response to the WADC request and the acceptance of McCoy's proposal dem-

onstrate that the admittedly simple approach to computer checking involved in this appeal was such that the differences between that approach and the prior art were not obvious to one of ordinary skill in the art, and did produce the unusual or surprising result referred to in *A&P, supra.*

IV. *INFRINGEMENT.*

Beckman's final contention is that the check circuitry of the Beckman 2100 and 2200 computers does not infringe claims 7, 8 and 13 of the McCoy patent. Figure 4 hereof is a simplified schematic diagram of the accused Beckman circuit. For convenience, the elements of the Beckman circuit have been labeled with the same numbers used for corresponding elements in the McCoy patent.

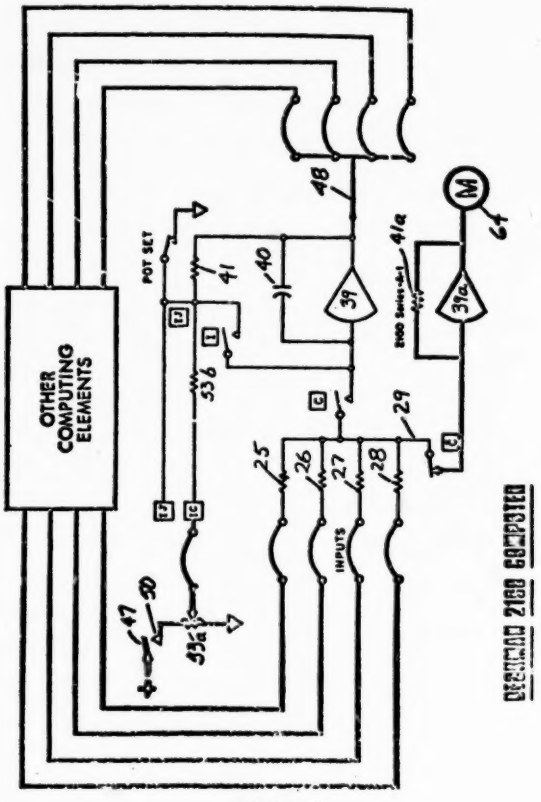

FIGURE 4

As illustrated in Figure 4, the Beckman check circuit opens the loop at the input to the integrating amplifier 39 by opening the contact labeled [C]. The integrating amplifier 39 is disabled and converted to a simple multiplier by closing the contact labeled [1] which places the shunt resistor 41 in parallel with the integrating condenser 40.

A fixed voltage is introduced into the opened loop by closing contracts 47,50 which connects a fixed voltage source, represented by potentiometer 53a, to the input of the multiplier circuit consisting of input resistor 53b, amplifier 39 and shunt resistor 41. This fixed voltage then circulates through the "Other Computing Elements" of Figure 4 and appears at the input resistors 25,26,27,28. The sum of the voltages appearing at the input resistors is the actual input to the integrating amplifier 39. That sum is measured by closing contact [C]. A separate measuring amplifier 39a with its shunt resistor 41a feeds the summed voltage to some type of measuring device 64 where it can be digitized and recorded or otherwise compared with the predicted value which should be present at this point if all interconnections, potentiometer settings, etc., are correct.

From this brief explanation, it can be seen that the Beckman circuit varies from the exemplary circuit of the McCoy patent in two ways. First, the loop is broken at the input to the integrating amplifier 39 by contact [C] as opposed to opening the loop at the output of the integrating amplifier as is done by contacts 46,47 of

the exemplary circuit of the McCoy patent shown in Figure 1 hereof. Second, the McCoy patent uses the converted integrating amplifier 39 as the measuring amplifier whereas the Beckman circuit provides an additional measuring amplifier 39a.

These differences do not, however, support Beckman's claim of non-infringement. It is, of course, well settled that the specification and drawings of a patent are exemplary only and the true measure of the invention is defined by the claims.[10] An examination of the three claims in issue here shows that the literal language of these claims, without aid to interpretative doctrines such as the doctrine of equivalents, embraces the Beckman circuit despite these minor differences.

With regard to the fact that the Beckman circuit opens the loop at the input to each integrator rather than at the output, it suffices to note that only claims 7 and 8 specifically require opening the loop and neither is limited to opening the loop at the output of the integrating amplifier. Rather, the claim language speaks only of "opening the loop."[11] In light of the obvious equivalency in operation, there is no merit to the suggestion that the claims should be narrowly interpreted and limited to circuit where the loop is opened at the output of the integrating amplifier.

As regards the use of a separate measuring amplifier in the Beckman circuit, the three claims in issue

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[10]*See e.g., Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 339 (1961).

[11]*See* note 1, *supra*, and accompanying text.

do not require that the disabled integrating amplifier be used as a part of the measuring system.[12] The language of these claims is thus broader than other claims,[13] not involved in this litigation, which do require that the disabled integrating amplifer operate as the measuring amplifier.

In sum, it is apparent that the accused Beckman circuit literally infringes claims 7, 8 and 13 of the McCoy patent. The minor differences between the Beckman circuit and the exemplary embodiment of the McCoy patent do not avoid literal infringement of the claims. "[T]o permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and to convert the protection of the patent grant into a useless thing." *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 607 (1950).

Affirmed.

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[12]*Id.*

[13]Claim 14, for example, depends from claim 13 and specifically requires that "said amplifier means associated with said measuring means forms a part of said integrating circuit." To accept Beckman's argument that the use of a separate measuring amplifier avoids infringement would amount to a finding that claims 13 and 14 are no different in scope.

Order on Petition for Rehearing.

In the United States Court of Appeals, for the Ninth Circuit.

Reeves Instrument Corporation and Dynamics Corporation of America, Plaintiffs-Appellees, v. Beckman Instruments, Incorporated, Defendant-Appellant. No. 24-060.

Filed: June 25, 1971.

Before: BARNES, DUNIWAY and WRIGHT, Circuit Judges.

Rehearing is denied. The suggestion for rehearing en banc was not timely filed and has not been considered.

The opinion on file herein is modified in the following respects:

Page 16 of the typewritten opinion and page 13 of the slip-sheet printing are stricken and the following paragraphs are substituted therefor:

> The claims in issue here are, in statutory language, "machine" claims.[3] They define a new "machine" which is composed of certain defined elements in combination. Carried to its logical conclusion, the argument here would result in a rule to the effect that *A&P* precludes the patenting of virtually every new mechanical or electrical device since the vast majority, if not all, involve the construction of some new device (or machine or combination) from old elements.[4] The *A&P* rule does not require that a combination patent be held invalid merely because all of the elements in the combination are old. It supports patentability where the combination produces "unusual or surprising consequences." As will be seen, that is what the McCoy patent does.

The Court's decision in *A&P* recognizes that non-obviousness is less likely to occur in combination patents, and therefore applies a somewhat more stringent rule of non-obviousness to such patents. It is not inconsistent with, but merely an application of; the general rule staetd in §103. The Court's more recent decision in *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969) supports this interpretation of the *A&P* decision.

Black Rock involved a similarly simple combination of old elements. The Court found that there was no invention when viewed by the "obvious-nonobvious standard." *Id.* at 63. Moreover, the Court in *Black-Rock* reaffirmed the position it had previously taken in *Graham v. John Deere Co.*, 383 U.S. 1 (1966) to make clear that the crucial question in determining obviousness is whether the differences between the subject matter sought to be patented, as a whole, and the prior art are obvious to a man of ordinary skill in the art.

From an analytical view, the most definitive statement of the requirement of non-obviousness and the approach to be taken by federal courts in determining this question is found in *Graham v. John Deere Co.*, 383 U.S. 1 (1966).

* * *

The paragraph appearing at page 20, lines 17-23 of the typewritten opinion, and being the fourth full paragraph on page 16 of the slip-sheet printing, is stricken and the following substituted therefor:

In short, we believe that the extensive efforts at M.I.T., the additional efforts in response to the

WADC request and the acceptance of McCoy's proposal demonstrate that the admittedly simple approach to computer checking involved in this appeal was such that the differences between that approach and the prior art were not obvious to one of ordinary skill in the art, and did produce the unusual or surprising result referred to in *A&P, supra.*

DATED:

Brief for Appellant.

In the United States Court of Appeals, for the Ninth Circuit.

Beckman Instruments Incorporated, Appellant, vs. Reeves Instrument Corporation, and Dynamics Corporation of America, Appellees. No. 24060.

3. The File-History of the McCoy Patent.

The application for the McCoy patent, as filed [DX-CF, pp. 1-22], disclosed and claimed checking apparatus in which the *output* from the integrator was broken, a test voltage was inserted in the computer circuit in place of the integrator *output*, means being provided for measuring the *output* of the integrator.

It was not until McCoy's amendment filed in the Patent Office on October 3, 1956 [DX-CF, pp. 26-34], in which patent claims 7 and 8 [application claims 15 and 16] were added [F. of F-18, R. 544], that there was any suggestion or disclosure by McCoy of breaking the circuit anywhere other than the integrator *output*, inserting the test voltage anywhere other than at such break at the integrator *output*, or of measuring the response of the circuit anywhere other than at such *output*. Claims 7 and 8 [and, later, claim 13] for the first time omitted such earlier claimed limitations and, for the first time, claimed the concept of measuring the *input* of the integrator circuit.

The original McCoy application [DX-CF, pg. 8] stated "In order to facilitate the checking operation, a read-out device 64 such as a digital converter and recording system is used to measure the output of the integrator *for the purpose of checking the output obtained.*" The italicized portion of this statement was deleted by the application amendment filed October 3,

1956 [DX-CF, pg. 27], at the same time the new claims 15 and 16 [patent claims 7 and 8] were added, thus broadening the application and claims to *for the first time* disclose and claim checking anything other than the output of the integrators.

In 1956, the main competitors of plaintiff Reeves in the field of general purpose analog computers were defendant Beckman, and Electronic Associates, Inc. (referred to in the record as "E.A." or "E.A.I.") [Spencer, Tr. 1811]. In 1956, the Reeves technical personnel was familiar with the products of its competitors [DX-ME and DV], and specifically with the static check circuitry of the EAI computers [Plaintiff's Interrogatory Answer 87, DX-MT], which was substantially identical to that of the accused Beckman 2100 [F. of F.-36, R. 490].

On August 14, 1956, Mr. Spencer, house patent counsel for plaintiff Reeves, who was handling the prosecution of the application for the McCoy patent, wrote a memo [DX-DV] to Loveman, with copies to McCoy and Dewey, all Reeves technical personnel interested in the application, in which he stated:

> "I would like to draw a set of broad claims if this is possible which will cover not only our own 'Problem Check' invention, but the problem check systems of our competitors."

It is significant that Mr. Spencer clearly distinguished between the "Problem Check" of Reeves and those of its competitors. It was after this frank statement by Mr. Spencer of his purpose to broaden the claims of the McCoy application to cover competitors' products that application claims 15 and 16 (patent claims 7 and 8) were added by the amendment filed in the Patent Of-

fice on October 3, 1956, and the application amended, as described abbove. If this constituted "new matter" added to the McCoy application, the claims in suit are invalid, as pointed out hereinafter.

The Beckman 2100 does not use the same means to perform the same functions and obtain the same results as the McCoy patent, as explained above, and, thus, there has been no infringement under the above law.

The original McCoy patent application disclosed and specifically claimed only a static checking circuit in which the *output* of the integrator was broken, a test voltage was inserted into the computer circuit in place of the integrator *output,* and the test measurement was made at such *output,* and it was not until more than eighteen months after the application was filed that the broader claims here in suit were added to claim measuring the test voltage at the integrator *input, expressly for the purpose of covering the static checking systems of competitors' computers* [*See:* pp. 32-34, *supra*]. Under such circumstances, the law is clear that the broadened claims [i.e., claims 7, 8, and 13 here in suit] should be limited by interpretation to cover only the device originally disclosed and claimed, and not be given an interpretation broad enough to cover a later and differing form of the device initiated by the patentee's competitors.

See:

Chicago & Northwestern Railway Co. v. Sayles, 97 U.S. 554, 563, 24 L.Ed. 1053 (1878);

Westinghouse Air-Brake Co. v. New York Air-Brake Co., 87 Fed. 882, 884, 885 (C.Ct. N.Y., 1898);

L. H. Gilmer Co. v. Geisel, 187 Fed. 606 (C.Ct. Pa., 1910);

United Shoe Machinery Co. v. L. Q. White Shoe Co., 279 Fed., 35 (C.C.A. 1st, 1922);

Union Special Mach. Co. v. Willcox & Gibbs Sewing Mach. Co., 32 F.2d 924 (D.C. Pa., 1929);

Pratt & Whitney Co., Inc. v. United States, 345 F.2d 838 (Ct. Cl. 1965).

In *Hazeltine Research, Inc. v. Zenith Radio Corp.,* 388 F.2d 25, 32, 33 (C.A. 7th, 1967), where the patentee broadened his application claims to cover a competitor's product, without clear support therefor in the original application or claims, the Court held the patent in suit invalid. To same effect, *see: Crown Machine & Tool Co. v. KVP-Sutherland Paper Co.,* 155 U.S.P.Q. 309, 157 U.S.P.Q. 308 (D.Ct. Cal., 1967).

Brief for Appellees.

In the United States Court of Appeals, for the Ninth Circuit.

Beckman Instruments Incorporated, Defendant-Appellant, v. Reeves Instrument Corporation and Dynamics Corporation of America, Plaintiffs-Appellees. No. 24060.

11. *There Has Been No Late Claiming to Excuse Infringement.*

Faced with undeniable infringement defendant seeks an escape route contrived by an allegation of "late claiming" coupled with an unfounded charge that the claims in suit were drafted "for the purpose of covering static checking systems of competitor's computers".

The dispositive answer to the general allegation of "late claiming" is the evidence which shows that the invention defined by the claims in suit had been described and claimed from the day the application was filed.

Measurement of the derivative at the integrator input was *not* first revealed in an amendment as asserted by Beckman (BR 33), but was taught in the original specification: "* * * the outputs of the integrators will be proportional to the initial value of the derivatives *applied thereto*", i.e. applied to their inputs, Col. 4/69, Tr. 480, 485; it was also the substance of original claim 2 (I6). This was the invention disclosed in the application as originally filed (D1-D11, I2), this was the invention originally claimed (I1-15) and this is the invention covered by the claims in suit (D5). The description of the invention was expressed in various terms at various stages of the Patent Office prosecution, being clarified and refined as the prosecution pro-

gressed, as is customary, but the *same invention* was claimed throughout.

The Trial Judge specifically found that an analysis of the prosecution history of the patent in suit:

> "* * * establishes that the checking arrangement which is the subject matter of claims 7, 8 and 13 in suit was disclosed and claimed in the original application as filed and continued to be claimed during the entire pendency of the application" (I1) and that:
>
> "patent claims 7 and 8 * * * are consonant with the objects and disclosures of the invention set forth in the original application as filed" (I12).

The Court also found that "claims 7 and 8 cover the same territory as that covered by claims 1-6 which appeared in the original application as filed" (I10).

The correctness of these findings is also demonstrated by the relationship between claim 2 of the patent and claims 7, 8 and 13 in suit. The Court found that the language of patent claim 2 "is found in original claim 2 of the application as filed" (I3); "patent claims 7 and 8 are directed to the same invention as that initially set forth in original claim 2 of the application * * *" (I12); and "claims 7 and 8 of the patent * * * merely made express what would have been regarded as the equivalent of the subject matter set forth in original claim 2 of the application as filed" (I 10).

The equivalency between claim 2 and the claims in suit was also demonstrated by the Court in finding that claim 2 "covers apparatus for checking * * * which * * * is the equivalent of the accused Derivative Check of defendant's 2100 and 2200 computers"

(I4), thereby demonstrating that original claim 2 *and* the claims in suit cover the same apparatus.

These findings "are corroborated by the Patent Office Examiner who referred to and emphasized the equivalency between the later claims and the original claims (see I9-I11), and who never raised any question concerning the support of claims 7, 8 and 13 by the description in the application as originally filed (I15). These findings are also completely consistent with the undeniable facts that (1) the accused structure was directly derived from McCoy, (2) the accused structure is, in essence, the same as that disclosed in the specification of the patent application leading to the patent in suit, and (3) that specification has never been materially altered in any way from the day it was filed (D15, I2).

The above facts conclusively demonstrate the absence of any improper "late claiming". The applicable law is referred to in the argument, pp. 42-46, *infra.*

This result is not changed by the unfounded allegation, based solely on suspicion and surmise, that the claims were drawn to cover a competititor's equipment.

First, the claims have always covered the competitor's equipment because the competitor's equipment is, in essence, the same as the patented equipment. Secondly, and as demonstrated above, the claims although varying in language have defined the same invention from the day the application was filed, well before the competitors copied McCoy. Third, Spencer did have knowledge of Beckman's first Chinese copy of McCoy's invention (the 1100) (E33-36). But the 1100 is obsolete and infringement by it is not in issue.

However, there is absolutely no evidence showing any knowledge by Spencer of either the accused check system* or the earlier EAI counterpart. The Trial Court, after scrutinizing the evidence now relied upon by appellant and after hearing the testimony of Spencer thereon (Tr. 1805-08; 1811; 1845), found that:

> "I13. There is no evidence that the claims introduced by amendment of October 1, 1956 were drawn for the purpose of covering the checking system of the EAI computer or that they were drawn to cover any particular computing apparatus".

The quoted memorandum of the patent solicitor, Spencer (BR 34), referring to his desire to draw claims "if possible" which will cover the competitor's "Problem Check" equipment, is no more than an expression of the perfectly legitimate objective of all patent solicitors to cover all modes of practicing the invention, including those modes adopted by copiers. It is no more than the judicially sanctioned means for "securing to inventors full benefit of their discoveries." *Grant v. Raymond,* 6 Pet. 218, 242-44 (1832).

The foregoing demonstrates that there are no grounds, late claiming or otherwise, for excusing the undeniable infringement of the claims in suit.

2. *There is no Late Claiming Which Would Render the Claims Non-Infringed or Invalid.*

Defendant argues (BR 53-55) that the language of claims 7, 8 and 13 should be ignored and that the claims should be arbitrarily limited so that defendant avoids infringement, or that the claims be held invalid, because, according to defendant, the claims were added

"*expressly for the purpose of covering * * * competitor's computers*" (BR 53).

That underlying factual premise, however, directly contradicts the District Court finding I13. See Section 11, *supra*. After evaluating the file history and other evidence and hearing the testimony of Mr. Spencer who prepared and prosecuted claims 7, 8 and 13, the District Court found "There is no evidence that the claims introduced by amendment of October 1, 1956 were drawn * * * to cover any particular computing apparatus" (I13). Hence the facts do not bring this case within the basic premise of any of the "late-claiming" decisions listed on pages 53-55 of defendant's brief.

Those decisions are distinguishable on other grounds as well. As this Court noted in *Locklin v. Switzer Brothers, Inc.*, 299 F2d 160, 167 (9th Cir., 1961), cert. den'd 369 U. S. 861 (1962) the late claiming doctrine does not preclude

> "* * * the ordinary give and take of Patent Office procedures: the shaping of the expression of that which was sought in order to make it conform appropriately to that which it was felt could properly be granted."

We agree of course that the right to amend patent applications and patent claims is not without limitation. New claims must not be based on *new subject matter* illegally *added* to the application after filing—a controlling fact situation underlying most of the late claiming law. Moreover, new claims must relate to the *same invention* as that originally disclosed in the application (*including equivalents*) and must relate to an invention which is *not inconsistent* with the original disclosure.

New claims based on illegally added new subject matter was the rationale for the landmark decision in *Chicago and Northwestern Railway Company v. Sayles* 97 U.S. 554, 24 Law. Ed. 1053 (1878) (BR 53). There the originally-filed description was "regarded as defective and insufficient by the Patent Office" and the claims which ultimately issued were based upon a "considerably modified and changed" version of the description through a "material addition to or variance from the original," introduced 5 years after the original filing. Moreover "the construction and mode of operation" of the accused infringement were "altogether so different from that of" the patentee, "that, considering the state of the art at the time when the latter was produced, and the necessary limits by which the Tanner patent must be circumscribed, we think that the two are to be regarded as independent inventions." (97 U.S. 565)

Likewise none of the five cases listed at the top of BR 54* is applicable to the facts of the case at bar, for the following reasons:

In *Westinghouse Air Brake* the claims were "not infringed * * * unless * * * given a construction not warranted by the specification" * * * "The patent is, so far as these claims are concerned, a transparent attempt to cover a combination of which Mr. Massey (the accused infringer) was the inventor" * * * "The claims cannot be extended to cover inventions not suggested by the specification." (87 Fed. 884, 885.) In the case at bar the facts are directly contrary—compare findings I9-I12; I14-15, D15; CNL7.

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*The very discussion of the other cases cited by defendant. BR 54-55, shows on their face that they are not applicable.

In *Gilmer v. Geisel,* the court said "the prior art so limited his application (of the later added claim 7) that it could not possibly support the wide extension sought by the amendment. As already stated, Gilmer's invention was not a pioneer * * * if the original application could not properly cover claim 7, that claim also becomes ineffective." (187 Fed. 610). For the contrasting facts here see the findings cited above, also H 1 and H 2.

In *United Shoe Machinery v. White* the inventor was *not* a "pioneer" in that he failed to produce "a wholly novel device which would entitle him to a broad range of equivalents" * * * "the defendant's alleged infringing device * * * *did not fall within the range of equivalents* as thus defined." "there is nothing in the specification supporting the broad claims * * * "the method by which (defendant's) device works is not the same as the plaintiff's." (279 Fed. 37, 38). In the case at bar the findings are quite the opposite. See the findings cited *supra.*

In *Union Special* the court equated the facts with those in *Railway v. Sayles, Gilmer v. Geisel and United Shoe v. United States.* "The defendant's structure did not read upon the original specifications or claims." * * * "Thompson was no pioneer in the art" and not entitled to any substantial range of equivalents. (32 F 2d 927, 928) Contrast findings D1, I6 and I10.

In *Pratt & Whitney v. United States* the facts were even more remote. There as to *all* the claims in suit the court held

> "It would constitute an unwarranted expansion of the doctrine of equivalents to hold that these dissimilar gas turbine fuel controls are encompassed by *any* of the claims relied upon by plaintiffs" (345 F.2d 841).

The court also found that none of the original claims "could *possibly* cover" the accused device (345 F.2d 843).

Thus the basic threads running through all of defendant's cited cases on late claiming are the recognition by the courts that the late claims were directed to something (1) *not supported* by the original disclosure and (2) clearly *not equivalent* to what was originally claimed. Judge Learned Hand made this latter point a vital distinction in *Engineering Development Lab v. RCA,* 153 F2d 523, 526 (2nd Cir. 1946):

> "The [late claiming] doctrine is designed to protect the public against abuses, not to deprive inventors of what they plainly never meant to put into the public demesne. It is enough here to say that *it certainly does not prevent amendments which go no further than to make express what would have been regarded as an equivalent of the original;* or to incorporate into one claim what was to be covered from the perusal of all, if read together."*

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*See also *Autogiro Co. of America v. U.S.,* 384 F2d 391 (Ct. of Cl. 1967); *Tubular Service & Engineering Co. v. Sun Oil Co.,* 220 F2d 27, 31 (5th Cir. 1955), cert. den'd 349 U.S. 947 (1955); *Sears Roebuck & Co. v. Jones,* 308 F2d 705 (10th Cir. 1962), cert. den'd 371 U.S. 952 (1963); *National Latex Products Co. v. Sun Rubber Co.,* 274 F2d 224 (6th Cir. 1959), cert. den'd 362 U.S. 989 (1960).

Reply Brief of Appellant.

In the United States Court of Appeals, for the Ninth Circuit.

Beckman Instruments Incorporated, Appellant, vs. Reeves Instrument Corporation, and Dynamics Corporation of America, Appellees. No. 24060.

I. Claims 7, 8 and 13 of McCoy Are Invalid for Late Claiming.

Appellant's Opening Brief (pp. 32-34, 53-54) pointed out that the broadened subject matter of McCoy claims 7, 8, and 13 in suit was added to the McCoy application after October 1, 1956 for the specific purpose of covering competitors' computers and *for the first time* disclosed and attempted to cover measuring the voltage appearing at the *input* of the integrator (as distinguished from measuring the voltage appearing at the *output* of the integrator which theretofore only had been claimed), and that if this constituted *new matter* the McCoy claims are clearly invalid.

Plaintiff's concern with the seriousness of this defense is attested by the amount of space which its brief (pp. 35-38, 42-46) devotes to attempting to explain it away.

Plaintiff's argument, and the relevant findings of fact by the District Court, are bottomed on the assertion that the McCoy patent claim 2 (not in suit) covers the same invention as covered by claims 7, 8 and 13 in suit. The error in this is clearly evidenced by the fact

that plaintiff does not charge defendant with infringement of claim 2.

Claim 2 as originally submitted and as it appears in the patent includes:

> ". . . means for disconnecting the output of the integrator from the computer circuit and substituting a constant voltage of a predetermined value in place thereof . . ."
>
> *and*
>
> ". . . means for measuring the output . . . of the integrator when the effect of the condenser is cancelled [in static check] . . ."

There neither is, nor ever has been, anything in claim 2 teaching breaking the closed-loop anywhere other than at the *output* of the integrator or measuring anything other than the *output* of the integrator. Also, there was nothing in any of the other original application claims [DX-CF, pp. 14-19] to teach the concept of the late-added claims 7, 8, and 13 in suit of measuring the *input* of the integrator. It is to be noted that none of such original application claims covered an apparatus or method for *only* a static check, all covering the dynamic check or a combination of dynamic and static checks. As found by the District Court [F. of F. I3, R. 542] claim 2 originally covered apparatus for *both* static and dynamic checks.

Plaintiff's brief completely disregards *Hazeltine Research, Inc. v. Zenith Radio Corp.*, 388 F. 2d 25 (C.A. 7th 1967) relied upon in our Opening Brief (p. 54). In *Hazeltine*, the Court held the patent in suit invalid

for the late claiming of subject matter not disclosed in the original application on facts apposite to the facts in the present action.

And see:

Crown Machine & Tool Co. v. KVP-Sutherland Paper Co., 297 F. Supp. 542 (D.C. Calif. 1968, aff'd. at 409 F. 2d 1307);

Phillips Petroleum Co. v. Sid Richardson Carbon & Gas Co., 293 F. Supp. 555 (D.C. Tex. 1968).

Plaintiff attempts to avoid the late-claiming defense on the ground that the apparatus covered by claims 7, 8 and 13 is the "equivalent" of that originally claimed in claim 2 of the original McCoy application.

It is established that devices which do not operate in the same, or substantially the same, way, even though they perform the same function as the patented device, are not equivalents:

See: Leishman v. Associated Wholesale Electric Co., 137 F. 2d 772 (C.C.A. 9th 1943);

Signal Mfg. Corp. v. Kilgore Mfg. Co., 198 F. 2d 667 (C.A. 9th 1952).

As pointed out in the Opening Brief (pp. 30-31, 50-51) the accused Beckman 2100 static checking device does not operate in the same, or even substantially the same way as the McCoy device. This is not denied by plaintiff. Therefore, the Beckman 2100 is not an equivalent of the McCoy device, under the law.

Furthermore, McCoy's original claim 2 originally covered a device for *both* static *and* dynamic checks, whereas claims 7, 8 and 13 cover only a static check

device. They clearly on their face do not cover equivalents.

If, as defendant asserts, its device is not the equivalent of the subject matter originally claimed by McCoy in original claim 2 and the other original application claims, the "late-claiming" defense is valid and invalidates the claims in suit.

Petition for Rehearing.

In the United States Court of Appeals, for the Ninth Circuit.

Beckman Instruments Inc., Appellant, vs. Reeves Instrument Corporation and Dynamics Corporation of America, Appellee. No. 24060.

(5) The Court Erroneously Declined to Consider the "Late Claiming" Defense.

The Opinion (pp. 11-12) states: "Other defenses, including late claiming, were urged before the district court but are not relied upon in this appeal and thus will not be discussed." This, we suggest, is clearly erroneous as to the "late claiming" defense.

The Brief of Appellant set forth both the facts (pp. 32-34) and the law (pp. 53-54) in support of the "late claiming" defense. The Brief for Appellees argued the defense at length (pp. 35-38). The Reply Brief of Appellant clearly asserted and argued the defense (pp. 9-12). Appellees' counsel orally argued the defense at length at the hearing on appeal, without objection by the Court.

We respectfully submit that the "late claiming" defense was a critical issue on appeal, is good and valid in law and fact, is a matter of public interest, and should be considered and decided by this Court to avoid a possible remand by the Supreme Court for its decision by this Court. *See: Liberty Oil Co. v. Condon National Bank*, 260 U.S. 245, 43 S. Ct. 83, 67 L. Ed. 232, at 237 (1922); *Maryland Casualty Co. v. Jones*, 279 U.S. 792, 49 S. Ct. 484, 73 L. Ed. 960, at 963 (1928).

We respectfully suggest that it is the duty of a Court of Appeals to consider and decide all issues properly

presented to it. *See: Twist v. Praire Oil & Gas Co.*, 274 U.S. 684, 47 S. Ct. 755, 71 L. Ed. 1297; *Ashton v. Town of Deerfield Beach*, 155 F. 2d 40 (C.C.A. 5th 1946). This is particularly true in patent cases on issues as to the validity of the patent in suit. *See: Sinclair & Carroll Co. v. International Corp.*, 325 U.S. 327, 65 S. Ct. 1143, 89 L. Ed. 1645 (1944).